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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/711,325
Filing Date: November 13, 2000
Appellant(s): UNGER, ROBERT ALLAN

Steven L. Nichols
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 01/21/2005.

*(1) **Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

*(2) **Related Appeals and Interferences***

The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

*(3) **Status of Claims***

The statement of the status of the claims contained in the brief is correct.

*(4) **Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

*(5) **Summary of Invention***

The summary of invention contained in the brief is correct.

*(6) **Prior Art of Record***

Jerding et al US Patent Application Publication No. 2002/0104097

Bahraini US Patent Application Publication No. 2002/0116706

Robbins et al U.S. Patent No. 6,807,676

Heberle et al U.S. Patent No. 5,220,580

*(7) **Grounds of Rejection to be Reviewed on Appeal***

**The only modification to the grounds of rejection are in response to the Applicant's request for support of the Official Notice statements given by the Examiner in the after final amendment. These prior art references were discussed in the Advisory Action sent to the Applicant on 11/02/2004.

The following ground(s) of rejection are applicable to the appealed claims:

1. Claim 3, 4, 11, 12, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jerding et al in further view of Bahraini.

Regarding Claim 3, Jerding shows a set-top unit for connection to a cable television system (page 1 section 0002-0003, settop box connected to cable system) comprising a control tuner (or out-of-band tuner) (page 2 section 0022, out of band tuner for bi-directional data communication), a programming tuner (or in-band tuner) (page 2 sections 0022, QAM tuner for receiving television signals), and a processor for controlling the tuners (fig. 2 item 24, page 2 section 0022, 0024, 0025, processor 24 for controlling operation of DHCT and tuner system). Jerding also shows that the processor controls the programming tuner to tune to frequencies carrying an active signal and controls the control tuner to frequencies carrying an active signal (page 2 section 0022, processor controls operations of tuning into a particular television channel and for sending and receiving data corresponding to various types of media from the headend). An active signal is any signal that contains data. Since there is television data and control data being sent, these signals are active. Although a tuner must somehow locate a particular carrier frequency in order to receive data, Jerding fails to show that the programming tuner scans frequencies to locate a control channel. Bahraini does show

scanning frequencies to find a control channel with a main programming tuner (page 1 sections 0008-0009, STB attempts to tune to an out-of-band channel and may scan a range of frequencies for the OOB channel). Bahraini shows a tuner that can scan in-band and out-of-band signals to find a control channel to download application codes. This allows the system to properly calibrate a tuner to receive data from a headend. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding with the ability to scan for frequencies as in Bahraini in order to allow the set-top box to find the desired communications channel.

Regarding Claim 4, Bahraini shows scanning a multitude of channels, including locating alternate channels if several channels fail to work (page 1 sections 0008-0010, scanning a range of frequencies and several pre-stored frequencies).

Regarding Claim 11, the limitations of the Claim have been addressed with regards to Claim 3.

Regarding Claim 12, the limitations of the Claim have been addressed with regards to Claim 4.

Regarding Claim 18, the limitations of the Claim have been addressed with regards to Claim 3.

Regarding Claim 21, Both Jerding (page 2 sections 0023-0024) and Bahraini (page 1 sections 0005-0008) show using computer-readable instructions stored in a medium for recording computer-readable instructions in a set-top unit. All further limitations of the claim have been discussed with regards to Claim 3.

2. Claims 5-8, 13-16, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jerding et al in further view of Bahraini and Heberle et al (5,220,580).

Regarding Claim 5, Jerding shows being able to control multiple tuners with a processor (page 2 sections 0022-0024) and Bahraini shows the ability to scan frequencies for a control channel (page 1 sections 0008-0010). Both Jerding and Bahraini fail to show splitting up the frequency scanning between two tuners. Heberle shows splitting up a frequency band to scan for a reference signal or carrier signal (col. 5 lines 20-55, to permit faster frequency lock, dividing the entire spread spectrum period into approximately equal lengths of time). Furthermore, it is well known and expected in the art to split up a task between plural, but similar, components to facilitate processing and speed up computational calculations. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding and Bahraini with the ability to split up the frequency scan into two sections, as shown in Heberle, in order to speed up the scanning process in order to find a control channel.

Regarding Claim 6, Jerding shows a set-top unit for connection to a cable television system (page 1 section 0002-0003, settop box connected to cable system) comprising a control tuner (or out-of-band tuner) (page 2 section 0022, out of band tuner for bi-directional data communication), a programming tuner (or in-band tuner) (page 2 sections 0022, QAM tuner for receiving television signals), and a processor for controlling the tuners (fig. 2 item 24, page 2 section 0022, 0024, 0025, processor 24 for controlling operation of DHCT and tuner system). Although a tuner must somehow

locate a particular carrier frequency in order to receive data, Jerding fails to show that the programming tuner scans frequencies to locate a control channel. Bahraini does show scanning frequencies to find a control channel with a main programming tuner (page 1 sections 0008-0009, STB attempts to tune to an out-of-band channel and may scan a range of frequencies for the OOB channel). Bahraini shows a tuner that can scan in-band and out-of-band signals to find a control channel to download application codes. This allows the system to properly calibrate a tuner to receive data from a headend. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding with the ability to scan for frequencies as in Bahraini in order to allow the set-top box to find the desired communications channel.

Jerding shows being able to control multiple tuners with a processor (page 2 sections 0022-0024) and Bahraini shows the ability to scan frequencies for a control channel (page 1 sections 0008-0010). Both Jerding and Bahraini fail to show splitting up the frequency scanning between two tuners. Heberle shows splitting up a frequency band to scan for a reference signal or carrier signal (col. 5 lines 20-55, to permit faster frequency lock, dividing the entire spread spectrum period into approximately equal lengths of time). Furthermore, it is well known and expected in the art to split up a task between plural, but similar, components to facilitate processing and speed up computational calculations. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding and Bahraini with the ability to split up the frequency scan into two sections, as shown in Heberle, in order to speed up the scanning process in order to find a control channel.

Regarding Claim 7, Jerding shows being able to control multiple tuners with a processor (page 2 sections 0022-0024) and Bahraini shows the ability to scan frequencies for a control channel (page 1 sections 0008-0010). Furthermore, Jerding shows a programming tuner (in-band tuner) and control channel tuner (out-of-band tuner). Both Jerding and Bahraini fail to show splitting up the frequency scanning between tuners and a second programming tuner. Both Jerding and Bahraini fail to show splitting up the frequency scanning between two tuners. Heberle shows splitting up a frequency band to scan for a reference signal or carrier signal (col. 5 lines 20-55, to permit faster frequency lock, dividing the entire spread spectrum period into approximately equal lengths of time). Furthermore, it is well known and expected in the art to split up a task between plural, but similar, components to facilitate processing and speed up computational calculations. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding and Bahraini with the ability to split up the frequency scan into two sections, as shown in Heberle, in order to speed up the scanning process in order to find a control channel. Also, Official Notice is given that it is well known and expected in the art to use more than one programming tuner, for such purpose as picture-in-picture. Therefore, it would have been obvious to one of ordinary skill in the art to provide another tuner it order to increase the viewing options and functionality, as well as provide another tuner to scan frequencies to speed up the scanning process.

Regarding Claim 8, Bahraini shows the ability to scan multiple frequencies and to determine whether the frequency is the correct control channel by locking onto the

channel (page 1 sections 0009-0011, STB attempts to tune and lock onto the out of band channel or in band channel). Since the processor controls the tuner, the process is inherently controlled by the tuner.

Regarding Claim 13, the limitations of the Claim have been addressed with regards to Claim 5.

Regarding Claim 14, the limitations of the Claim have been addressed with regards to Claim 6.

Regarding Claim 15, the limitations of the Claim have been addressed with regards to Claim 7.

Regarding Claim 16, the limitations of the Claim have been addressed with regards to Claim 8.

Regarding Claim 19, the limitations of the Claim have been addressed with regards to Claim 6.

Regarding Claim 22, the limitations of the Claim have been addressed with regards to Claim 6.

3. Claims 23, 25, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jerding et al in further view of Bahraini and Robbins et al (6,807,676).

Regarding Claim 23, Jerding shows a set-top unit for connection to a cable television system (page 1 section 0002-0003, settop box connected to cable system) comprising a control tuner (or out-of-band tuner) (page 2 section 0022, out of band tuner for bi-directional data communication), a programming tuner (or in-band tuner) (page 2 sections 0022, QAM tuner for receiving television signals), and a processor for

controlling the tuners (fig. 2 item 24, page 2 section 0022, 0024, 0025, processor 24 for controlling operation of DHCT and tuner system). Jerding also shows that the processor controls the programming tuner to tune to frequencies carrying an active signal and controls the control tuner to frequencies carrying an active signal (page 2 section 0022, processor controls operations of tuning into a particular television channel and for sending and receiving data corresponding to various types of media from the headend). Although a tuner must somehow locate a particular carrier frequency in order to receive data, Jerding fails to show that the programming tuner scans frequencies to locate a control channel. Bahraini does show scanning frequencies to find a control channel with a main programming tuner (page 1 sections 0008-0009, STB attempts to tune to an out-of-band channel and may scan a range of frequencies for the OOB channel). Bahraini shows a tuner that can scan in-band and out-of-band signals to find a control channel to download application codes. This allows the system to properly calibrate a tuner to receive data from a headend. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding with the ability to scan for frequencies as in Bahraini in order to allow the set-top box to find the desired communications channel.

Although Jerding shows a processor that controls both a programming tuner and control channel tuner, both Jerding and Bahraini fail to specifically state controlling the tuners concurrently. Robbins shows using two tuners concurrently (col. 12 lines 35-45, simultaneous tuning of an analog video channel tuner and digital tuner). Furthermore it is well known and expected in the art to control two tuners at the same time. This allows

the system to perform multiple tasks without the need to wait for instructions to be completed by one of the tuners. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Jerding and Bahraini with the ability to control both of the tuners at the same time, as shown in Robbins, so that the system could access both tuners independently with individual instruction sets.

Regarding Claim 25, Jerding also shows that the processor controls the programming tuner to tune to frequencies carrying an active signal and controls the control tuner to frequencies carrying an active signal (page 2 section 0022, processor controls operations of tuning into a particular television channel and for sending and receiving data corresponding to various types of media from the headend). An active signal is any signal that contains data. Since there is television data and control data being sent, these signals are active.

Regarding Claim 26, Bahraini shows scanning a multitude of channels, including locating alternate channels if several channels fail to work (page 1 sections 0008-0010, scanning a range of frequencies and several pre-stored frequencies).

Regarding Claim 28, Jerding shows a set-top unit for connection to a cable television system (page 1 section 0002-0003, settop box connected to cable system) comprising a control tuner (or out-of-band tuner) (page 2 section 0022, out of band tuner for bi-directional data communication), a programming tuner (or in-band tuner) (page 2 sections 0022, QAM tuner for receiving television signals), and a processor for controlling the tuners (fig. 2 item 24, page 2 section 0022, 0024, 0025, processor 24 for controlling operation of DHCT and tuner system). Jerding also shows that the processor

controls the programming tuner to tune to frequencies carrying an active signal and controls the control tuner to frequencies carrying an active signal (page 2 section 0022, processor controls operations of tuning into a particular television channel and for sending and receiving data corresponding to various types of media from the headend). Although a tuner must somehow locate a particular carrier frequency in order to receive data, Jerding fails to show that the programming tuner scans frequencies to locate a control channel. Bahraini does show scanning frequencies to find a control channel with a main programming tuner (page 1 sections 0008-0009, STB attempts to tune to an out-of-band channel and may scan a range of frequencies for the OOB channel). Bahraini shows a tuner that can scan in-band and out-of-band signals to find a control channel to download application codes. This allows the system to properly calibrate a tuner to receive data from a headend. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding with the ability to scan for frequencies as in Bahraini in order to allow the set-top box to find the desired communications channel.

Although Jerding shows a processor that controls both a programming tuner and control channel tuner, both Jerding and Bahraini fail to specifically state controlling the tuners concurrently. Robbins shows using two tuners concurrently (col. 12 lines 35-45, simultaneous tuning of an analog video channel tuner and digital tuner). Furthermore it is well known and expected in the art to control two tuners at the same time. This allows the system to perform multiple tasks without the need to wait for instructions to be completed by one of the tuners. Therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to modify Jerding and Bahraini with the ability to control both of the tuners at the same time, as shown in Robbins, so that the system could access both tuners independently with individual instruction sets.

Also, although Jerding shows the use of two tuners (page 2 section 0022), Jerding, Bahraini, and Robbins fail to show using two programming tuners. Official Notice is given that it is well known and expected in the art to use two programming tuners. This facilitates the ability to view multiple channels concurrently, such as picture-in-picture. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding and Bahraini with two programming tuners so that a user could watch or access multiple programming streams at one time.

4. Claims 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jerding et al in further view of Bahraini, Robbins et al (6,807,676), and Heberle et al (5,220,580).

Regarding Claim 27, Jerding shows being able to control multiple tuners with a processor (page 2 sections 0022-0024) and Bahraini shows the ability to scan frequencies for a control channel (page 1 sections 0008-0010). Jerding, Bahraini, and Robbins fail to show splitting up the frequency scanning between two tuners. Heberle shows splitting up a frequency band to scan for a reference signal or carrier signal (col. 5 lines 20-55, to permit faster frequency lock, dividing the entire spread spectrum period into approximately equal lengths of time). Furthermore, it is well known and expected in the art to split up a task between plural, but similar, components to facilitate processing and speed up computational calculations. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of

Jerding and Bahraini with the ability to split up the frequency scan into two sections, as shown in Heberle, in order to speed up the scanning process in order to find a control channel.

Regarding Claim 29, the limitations of the Claim have been discussed with regards to Claim 27.

5. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jerding et al in further view of Bahraini, Robbins et al, and Chiu et al.

Regarding Claim 24, Bahraini shows storing frequencies of the channel in a memory (page 1 section 009), but Jerding, Bahraini, and Robbins fail to show that the frequency is the last known. Chiu shows using the last known frequency in the memory (col. 26 lines 25-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Jerding and Bahraini with the ability to use the last known frequency to calibrate the tuner so that the system could potential tune to the correct frequency without the need for scanning other channels.

(8) Response to Argument

1. Regarding Claim 23-27 and 28-29, Applicant argues that "the combination of Jerding and Bahraini fails to teach or suggest using two tuners concurrently, a control channel tuner and a programming tuner, to locate a control channel...neither reference teaches or suggest a set-top unit that includes and concurrently uses two tuners to scan a frequency band to locate a control channel, as claimed" (page 6 lines 9-14). Applicant further argues that "Robbins...teaches a video tuner and a digital audio tuner that are used simultaneously...Thus, Robbins, cannot

support the position that it would have been obvious to concurrently use two similar tuners as claimed. More importantly, Robbins does not teach or suggest using two similar tuners in a set-top unit to locate a control channel as claimed" (page 6 line 24 to page 7 line 7). Examiner asserts that Jerding clearly shows using two tuners, a control channel tuner (page 2 section 0022, out of band tuner for bi-directional data communication) and a programming tuner (or in-band tuner) (page 2 sections 0022, QAM tuner for receiving television signals) to tune to video programming and control data from a head-end. Although a tuner must somehow locate a particular carrier frequency in order to receive data, Jerding fails to show that the programming tuner scans frequencies to locate a control channel. Bahraini does show scanning frequencies to find a control channel with a main programming tuner (page 1 sections 0008-0009, STB attempts to tune to an out-of-band channel and may scan a range of frequencies for the OOB channel). Bahraini shows a tuner that can scan in-band and out-of-band signals to find a control channel to download application codes. Therefore, the only aspect that is not shown by Jerding and Bhraini is using two tuners concurrently (although Jerding very well might use two tuners concurrently to send programming data and control data at the same time, this is not specifically stated). This is the reason that Robbins is used. Robbins is merely used to show that it is well known and expected in the art to operate two tuners at the same time, or concurrently (col. 12 lines 35-45, operating video channel tuner and digital tuner at the same time). Robbins is not used to teach locating a control channel because this has already been shown by Bahraini.

Furthermore, the fact that Robbins shows using a video tuner and digital audio tuner does not affect the functionality of the components. Each tuner is still capable of receiving data, just as a programming tuner or control channel tuner. The only difference is that the data being

received is different, which has no affect on the functionality or similarity of tuning a carrier frequency or operating tuners concurrently. Robbins clearly shows concurrently controlling two tuners (col.12 lines 35-45). Additionally, Robbins shows the use of an out-of-band control channel and program channel (col. 4 lines 40-67, col. 5 lines 5-15, control data channel tuner for receiving control data). This secondary tuner can also be used to receive the digital audio signals (col. 5 lines 55-65, col. 6 lines 35-45, integrating audio programming on the CDC). Finally, Robbins shows that the in-band and out-of-band data may be viewed simultaneously (col. 6 lines 65-67, col. 7 lines 1-7, simultaneously receiving in band and out of band data). Since, Robbins shows a variety of methods of receiving in band and out of band data simultaneously between two tuners, there is ample motivation and suggestion that these techniques are frequently used in the art.

2. Regarding Claims 6-8, 14-16, 19, and 22, Applicant argues that "the combination of references cited does not teach or suggest using multiple similar components to conduct a single task, e.g. searching for a control channel. Thus, even if the Official Notice is given credit, the prior art still does not teach or suggest a processor that divides a frequency band among two similar tuners in search for a control channel...Heberle does not teach or suggest dividing up a frequency band among two tuners in the search for a control channel. Heberle rather teaches synchronization of a phase-locked loop" (page 9 lines 5-13). Examiner asserts that Heberle clearly shows using similar components to divide a frequency spectrum in order to find a reference signal (col. 5 lines 20-55, search time can be halved because search spectrum is halved by using multiple components to search). The reference signal that is searched for in Heberle carries data, making it an active signal. Furthermore, this reference signal similar to a carrier

frequency and contains data, making it similar to a control channel. Heberle is not used to show any of the tuners or processor which have been clearly pointed out in the above rejection by Jerding and Bahraini. The only aspect that is missing from Jerding and Bahraini is dividing the search frequency between into two spectrums, to facilitate a faster search or scan. This method is clearly laid out in Heberle. Furthermore, it is a well known and commonly used engineering principle that using multiple components to facilitate a process speeds up this process. This technique is used extensively in the computer art in order to maximize proficiency and allow for faster processing times.

3. Regarding Claims 3-5, 11-13, 18 and 21, Applicant argues that "the combination of Jerding, Bahraini, and Robbins fails to teach or suggest using two tuners to search for a control channel. The combination further fails to teach or suggest using the two tuners as described in claim 3, one to search for active signals and one to determine if an active signal, once located is a control channel...Nowhere does this combination teach or suggest using two tuners concurrently, let alone using one to find active signals and the second to follow up to determine if any of the active signals are control channels" (page 10 lines 18-25). First, there is nothing in the claimed limitations of claims 3, 11, 18, or 21 that requires the "concurrent" use of the two tuners. Although the processor controls the two tuners, there is no limitation of "using two tuners concurrently" and therefore the argument is moot. Furthermore, Jerding clearly shows the use of a programming tuner and a control tuner that can both tune to active signals (page 2 section 0022, out of band tuner for bi-directional data communication, QAM tuner for receiving television signals). As stated above and in the previous Advisory Action, an active signal is any signal that contains data. Since there is television data and control data being sent, these signals

are active. Also, it is understood that the signal that the control channel tuner, or out-of-band tuner, locks onto is the control channel. There would be no logical reason for the control channel tuner to tune to a signal that is not the control channel. Although the control channel tuner must somehow acquire this control frequency, it is not specifically state by Jerding. Therefore, Bahraini is used to show using the program tuner to scan active frequencies and locking onto a control channel (OOB channel) (page 1 sections 0009-0010, STB locks onto an OOB channel after scanning a range of frequencies for the OOB channel). Because this tuner "locks" onto the control channel, it must determine that this is the control channel. The tuner does not arbitrarily "lock" onto a frequency and hope that it is the correct data channel. If the channel that was "locked" was not the control channel, there would be no communication between the set-top box and head-end. So, once the tuner has locked onto this OOB channel, it has found an active channel and determined it to be the control channel, therefore the limitations have been met. For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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